

CONTRIBUTIONS TO A REVISION OF THE RECENT RISSOIDÆ OF AUSTRALIA.

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I. INTRODUCTORY REMARKS.

By way of apology for the fragmentary character of this essay I would explain—Firstly, that the large amount of South Australian material which I have accumulated in the last twenty years should no longer remain unrecorded, more especially that I have now elaborated our recent species in conjunction with those of the Older Tertiary of Australia; secondly, in the endeavour to bring the Australian species into an alignment with the subordinate groups of each genus, and thus indicate a closer affinity *inter se*, I have found it necessary to make considerable emendations of nomenclature, and in view of the increasing competition (which I am extremely glad to note) among Australian conchologists, I think it desirable to record my investigations without delay. Though the chapter on Rissoiæ is, in the main, a rectification of nomenclature, yet the jackal-like conduct therein exhibited is a consequence rather than an incentive to play such a rôle.

The family Rissoidæ is represented in Australian waters by two genera only, *Rissoia* and *Rissoina*, viewed in their widest acceptation. Prior to the publication of the "Mollusca of the Novara Expedition," very few species of the family had been recorded for Australia. Since then the chief contributions are those by Tenison-Woods on the Tasmanian species, and by Watson on those collected by the Challenger Expedition.

As indicating the rapid gain of species in the family, I may refer by way of illustration to the growth of our knowledge of the South Australian contingent. The first provincial list of marine shells by Angas in 1865 contains only one species of the family (*Rissoina D'Orbigny*); in 1880 the same conchologist

added four other species of *Rissoina* (based on material supplied by me). The genus *Rissoia* in one species (*R. Hulliana*) was recorded for the first time in my List of Marine Mollusca, published by Adcock in 1893. At that date I had in my possession the species herein catalogued, though their denominations had not then been authentically assured, and so were not included. The South Australian *Rissoids* now number about 50; this very large increase is due to the dredging operations by Dr. Verco, whilst the denomination of a large number of the species results from a comparison of the Tasmanian species which have been placed at my service by Mr. W. L. May (who has taken great pains to identify his species with the types).

The following table, which shows the provincial distribution of the species, does not take into account the undescribed species (*Rissoia*, 14; *Rissoina*, 2) in the collection of Dr. Verco.

	Total sp.	S.A.	V.	T.	New S.W.	Q.	N.A.	W.A.
<i>Rissoia</i> ...	42	23	8	23	24	3	2	2
<i>Rissoina</i> ...	36	7	7	14	10	3	16	3
Total ...	78	30	15	37	34	6	18	5

The superiority of numbers in the columns for South Australia, Tasmania, and New South Wales is the outcome of conchological zeal actively and continuously pursued for the past twenty-five years or more; the inferiority of numbers in the other provincial columns signifies, on the other hand, paucity of results rather than as an expression of climatic influence on the development of species.

The Australian area, as a whole, compares very favourable in the number of its species (78) with the rest of the world.

The sign ! suffixed to a locality name indicates that specimens therefrom are in my cabinet or have been studied by me. The incompleteness of these "Contributions" arises from want of personal knowledge of certain species.

As a warning note, I may allude to the tendency in the family to great variability of size. Employing the modified aperture as an index to the adult condition, which we are safe in doing so, because in no case have I found indications of former apertural modifications. I appeal by way of illustration to my measures of a macromorph and a micromorph of my *Rissoina punctatissima*, both with completed apertures and of the same number of whorls. Despite this variability in size, not actually observed in all the species, I do not find correspondingly therewith variations of sculpture, at any rate not to that extent to make specific limitations difficult to define.

II. CLASSIFIED LIST OF RISSOIAE.

I. SUBGENUS RISSOIA.

1. SECTION RISSOIA (*sensu stricto*).

R. SALEBROSA, Dunker, 1866.

S.A. (Dr. Verco), N.S.W. (type), Sydney (ex. Aust. Mus.).

2. SECTION APICULARIA.

R. TRAJECTA, Watson, 1886.

N.A. (type).

R. NOVARENSIS, Frauenfeld, 1867.

N.S.W., Sydney (ex. Aust. Mus.).

II. SUBGENUS SABANÆA.

1. SECTION SABANÆA (*s. s.*).

R. FLAMMEA, Dunker, 1866.

N.S.W. (type).

R. INCIDATA, Dunker, 1866.

N.S.W. (type), Sydney (ex. Aust. Mus.); S.A. (Dr. Verco).

R. BICOLOR, Petterd, 1884.

Tasmania (type)!; Streaky Bay, S.A.!

? R. DUBITABILIS, Tate (*nom. mut.*).

R. dubia, Petterd, 1884; non DeFrance, 1827; non Johnston, 1884.

Tasmania (type).

2. SECTION AMPHITHALAMUS, Carpenter, 1865.

Scrobs, Watson, 1886.

R. SCROBICULATOR, Watson, 1886.

N.S.W. (type).

R. OLIVACEA, Dunker, 1867.

Diala tumida, T. Woods, and *R. Diemenensis*, Petterd, 1884 (teste Brazier).

S.A. (Dr. Verco); Vict.; Tasm. !; N.S.W. (type), ex. Aust. Mus.!

R. FRAUENFELDI, Schwartz, 1866.

N.S.W. (type), ex. Aust. Mus. !; S.A. (Dr. Verco).

R. PELLYÆ, Nevill, 1881.

S. Australia (type)!

R. PETTERDI, Brazier, 1894.

R. pulchella, Petterd, Jour. Conch., 1884, non Risso.

Tasmania (type)!; South Australia (Dr. Verco)!; New South Wales.

R. CYCLOSTOMA, Ten-Woods, P.R. Soc., Tasm., 1877, p. 152.

R. (Cingula) cyclostoma, Tryon, Man. Conch., IX., p. 344, t. 71, f. 8.

It has been suggested that this species is only a smooth form of *R. Frauenfeldi*, but I consider it a valid species, as in addition to the smooth test, the shape is more pupoidal.

Tasmania (type)!; Victoria and S. Australia (Tate); New South Wales (Henn).

R. TASMANICA, Ten.-Woods, 1877, as *Stylifer*. Tasmania (type)!; South Australia and Victoria (Tate).

R. ISCHNA, Tate (*nom. mut.*).

Rissoina cylindracea, Ten.-Woods, Proc. Linn. Soc., N.S.W., 1877.

The transference of this species to *Rissoina* necessitates the employment of a new name, because *cylindracea* has been in use in the genus by Krynicki 1837.

N.S.W.; off Port Jackson (type); authenticated examples in my collection, ex. Aust. Mus.

R. JACKSONI, Brazier, 1894.

R. badia, Watson, 1886, non Petterd, 1884.

N.S.W. (type), ex. Aust. Mus. !; S.A. (Dr. Verco).

R. VERCONIS, Tate (*nom. mut.*).

R. badia, Petterd., Jour. Conch., 1884, p. 138, non A. Adams, 1861.

Tasmania (type)!; N.S.W. (Henn.); S.A. (Dr. Verco).

R. MICROTHYRA, Martens.

S.A. (Dr. Verco); Mauritius (type).

3. SECTION ANABATHRON.

R. CONTABULATA, Dunker, 1866.

S.A. !; V.; T. (W. L. May)!; N.S.W. (type), ex. Aust. Mus.!

R. UNILIRATA, Ten.-Woods, P. R. Soc., Tasm., 1878, p. 123 (*Rissoina*).

Tasmania (type)!

III. SUBGENUS CINGULA.

1. SECTION CINGULA (s. s.).

R. MERCURIALIS, Watson, 1886.

N.A. (type).

R. AUSTRALIÆ, Dunker, 1866.

N.S.W. (type).

2. SECTION ONOBA.

R. AGNEWI, Ten.-Woods, 1877.

Tasmania (type)!

R. TENISONI, Tate (*nom. mut.*).

R. (Cingulina) australis, Ten.-Woods, P.R.Soc., Tasm., 1877, p. 146; *id.*, 1878, p. 151 (emended description), non G. B. Sowerby.

R. (Onoba) australis (Ten.-Woods), Suter, Proc. Mal. Soc., 1898, p. 4.

Suter's description of this species is a copy of Ten.-Woods' earlier diagnosis, and he has overlooked the subsequent emendations made by that author.

The date of transference of *Rissoa australis*, G. B. Sby., to *Rissoina* was subsequent to the publication of Ten.-Woods' name, hence there was a dual employment of *australis* in *Rissoia*; similarly Watson describes an *australis*, whilst there is also *R. australiæ*, Dunker, 1866, a too similar name to make it desirable to retain *australis* for Woods's species.

Tasmania (type)!; Victoria; S.A. (Dr. Verco); Stewart Island, N.Z. (Suter).

3. SECTION CERATIA.

R. MACCOYI, Ten.-Woods, 1877.

Tasmania (type)!; S.A. (Dr. Verco); N.S.W.

4. SECTION SETIA.

R. ATKINSONI, Ten.-Woods, 1877.

Tasmania (type)!; S.A.!

R. ATROPURPUREA, Dunker, 1866.

S. Aust. (Dr. Verco); N.S.W. (type), ex. Aust. Mus.!

R. NITENS, Dunker, 1866.

N.S.W. (type), ex. Aust. Mus. !; S.A. (Dr. Verco).

R. BEDDOMEI, Tate (*nom. mut.*).

R. flamia, Beddome, 1882, non *flammea*, Dunker, nec Pease.

Tasmania (type); N.S.W. (Brazier); Sydney (ex. Aust. Mus.!).
Beddome's name is an orthographical blunder.

R. TORCULARIS, Ten.-Woods, 1877.

Tasmania (type).

R. MIXTA, Tate (*nom. mut.*).

R. ochroleuca, Brazier, 1894, non Brusina, 1869.

N.S.W. (type). Received from Aust. Mus.

5. SECTION MICROSETIA.

? R. APPROXIMA, Petterd., 1884.

Tasmania (type).

? R. LAYARDI, Petterd., 1884.

Tasmania (type).

6. SECTION CINGULINA.

R. MELANOCHROMA, Tate (*nom. mut.*).

R. melanura, Ten.-Woods., Proc. Roy. Soc.

Tasmania, 1877, p. 153.

R. (Cingulina) melanura, T. Woods, Tryon, Man. Conch., IX., p. 358, t. 7, f. 7.

I have changed Woods's name because it had been previously employed in the genus by C. B. Adams in 1850.

Tasmania (type)! Cape Northumberland and West Coast of S. Australia.

IV. SUBGENUS ALVANIA.

1. SECTION ALVANIA (*s. s.*).

R. DEVECTA, Tate (*nom. mutand.*).

Alvania gracilis, Angas, P.Z.S., 1877, p. 174, t. 26, f. 16 ;

id., Tryon, Man. Conch., IX., p. 364, t. 66, f. 47
(copied).

The prior employment of *gracilis* in the genus by MacGillivray makes it necessary to substitute another name for the one given by Angas.

Port Jackson, New South Wales (type), ex. Aust. Mus. !

S. Australia (Dr. Verco).

R. HULLIANA, Tate, 1893.

Dunkeria fasciata, Ten.-Woods, P.R.S., Tasm., 1876,

p. 146 ; *Alvania fasciata*, Ten.-Woods, *op. cit.*, 1877,
p. 152 (emended description).

Rissoa (Alvania) Hulliana, Tate (*nom. mut.*). Hand
List, S. Australia Moll., 1893, p. 7.

The prior employment of the species name *fasciata* for a *Rissoia* by Requier in 1848, Coq. Corse., p. 56, necessitated a new name, which is in compliment to Rev. T. Hull, who was, while resident in Tasmania, an enthusiastic conchologist.

Tasmania (type)! Victoria, S. Australia (abundant at Streaky and Fowler Bays), and W. Australia (R. Tate).

R. STRANGEI, Brazier, 1894.

R. lineata, Petterd., Jour. Conch., 1884, p. 137.

R. (Apicularia) Strangei, Brazier, P.L.S., N.S.W., IX.,
1894, t. 14, f. 11, p. 173 ; *id.*, p. 695, 1895.

Petterd's name is the older. *R. Strangei* was independently described in 1894, and subsequently Brazier showed the two to be identical, and because of the pre-occupation of *lineata* by Risso in 1826 his name must stand.

Tasmania! (type of *R. lineata*) ; New South Wales (type of *R. Strangei*) ; S. Australia (Dr. Verco).

R. BAYNTONI, Beddome, 1882.

Tasmania (type).

2. SECTION ALVINIA.

R. CHEILOSTOMA, Ten.-Woods, 1877.

R. plicata, Hutton, Cat. Marine Moll., N.Z., 1873, p. 29 ;

id., Suter, Proc. Mal. Soc., III., p. 6, 1898 (non
Deshayes, 1838).

R. cheilostoma, Ten.-Woods, Proc. Roy. Soc. Tasmania,
1877, p. 152 ; *id.*, Tryon, Man. Conch., IX., p. 366,
t. 68, f. 31 (original).

Alvania elegans, Angas, P.Z.S., 1877, t , f. (non A. Adams, 1851, non Brusina, 1869).

Suter has identified the New Zealand and Tasmanian shells, despite certain discrepancies in the two diagnoses. This step is substantiated by his re-description of Hutton's species based on New Zealand specimens, and gives priority to Hutton's name. The insufficiency of the original diagnosis has been rendered further unstable by the author's uncertainty as to the generic location of his species, thus at first regarded as a *Rissoia*, it was transferred to *Rissoina* in 1880 and to *Eglisia* in 1885. Under these circumstances I would press the rigid exercise of the rule of priority to preserve Tenison-Woods's name (Angas' name has been in prior use by at least two authors) and this is afforded by the fact that Deshayes in 1838 (*teste* Schwartz) described a *Rissoa plicata*.

Tenison-Woods and Angas placed their species in *Alvania*. I agree with Tryon and Suter in quoting the species under *Alvinia*, a section later erected by Montserrat in 1884.

Tasmania (type)!; Cape Northumberland, S. Australia (R. Tate); Victoria.

New South Wales (type of *R. elegans*), ex. Aust. Mus.!

New Zealand (type of *R. plicata*).

R. GARRETTI, Tate (*nom. mut.*).

R. venusta, Garrett, 1873, non Philippi, 1844.

South Queensland (ex. Brisbane Mus. !); type-locality Viti Is.

SYNONYMS AND EXCLUDED SPECIES.

Angeli, *Ten.-Woods*=*Cyclostrema* Angeli.

Australis, *Ten.-Woods*=*R. Tenisoni*.

Badia, *Petterd*=*R. Verconis*.

Badia, *Watson*=*R. Jacksoni*.

Brazieri, *Ten.-Woods*=*Assimineia*, sp.

Cylindracea, *Ten.-Woods* (*Rissoina*)=*R. ischna*.

Diemenensis, *Petterd*=*R. olivacea*.

Dubia, *Petterd*=*R. dubitabilis*.

Elegans, *Angas*=*R. cheilostoma*.

Fasciata, *Ten.-Woods*=*R. Hulliana*.

Flamia, *Beddome*=*R. Beddomei*.

Gracilis, *Angas*=*R. devecta*.

Lineata, *Petterd*=*R. Strangei*.

Mariæ, *Ten.-Woods*=*Diala varia*.

Melanura, *Ten.-Woods*=*R. melanochroma*.

Ochroleuca, *Brazier*=*R. mixta*.

Plicata, *Hutton*=*R. cheilostoma*.

Pulchella, *Petterd*=*R. Petterdi*.

Punctatostriata, *Ten.-Woods*=*Adelactæon concinna*=*casta* (*teste* Brazier).

Siennæ, *Ten.-Woods*=*Assimineæ* Tasmanica.

Tumida (Diala), *Ten.-Woods*=*R. olivacea*.

Venusta, *Garrett*=*R. Garrettii*.

III. CLASSIFIED LIST OF RISSOINÆ.

KEY TO THE SUBGROUPS OF RISSOINÆ.

Aperture with basal emargination.

No funicular rib on base.

RISSOINÆ.

Axially costated.

Rissoina.

Posterior whorls costated, anterior

whorls smooth, or spirally striate.

Morchiella.*

Sculpture reticulate.

Phosinella.

Sculpture of fine costæ and spiral striations.

Zebinella.

Spiral ribs nodulose, outer lip crenate.

Pyramidelloides.

Surface punctulate, aperture auriform, outer lip margined and expanded.

DIASTICTUS.

A funicular rib on base.

RISSOLINÆ.

Aperture without basal emargination.

SCHWARTZIELLÆ.

I. SUBGENUS RISSOINÆ.

1. SECTION RISSOINÆ.

R. SCOLOPAX, Sowerby.

North Australia (Melvill and Standen, Journ. Linn. Soc., 1899, p. 171).

Loyalty Island.

R. THAUMASIA, Melvill and Standen, 1898.

North Australia, Melvill and Standen, *op. cit.*; Madras.

R. FASCIATA, A. Adams, 1851.

R. Smithi, Angas, 1867 (*teste* Brazier).

New South Wales (type); Sydney (ex. Aust. Mus.!).

R. GERTRUDIS, Ten.-Woods, 1876.

Tasmania (type); Victoria.

R. HANLEYI (Schwartz).

Philippines (type); New South Wales (ex. Aust. Mus.!); Victoria (R. Tate).

R. NIVEA, A. Adams.

S. Australia (type)!; Victoria; Tasmania!; W. Australia!

R. SPIRATA, Sowerby, 1824.

S. Australia!; Vict.!; Tasm.!; N.S.W.; N. Aust.

R. TRIANGULARIS, Watson, 1886.

N. Aust. (type).

R. VARIEGATA, Angas, 1867.

N.S.W. (type), ex. Aust. Mus.!!; Tasm.!

* See post, p. 240.

2. SECTION PHOSINELLA.

R. CLATHRATA, A. Adams.

N. Aust. (Chevert Exped.); Torres Straits (ex. Aust. Mus. !)

R. EXASPERATA, Sowerby, 1866.

R. quasillus, Melvill (*teste* Hedley).

Palm and Darnley Islands, N. Aust. (Chevert Exped.); New Caledonia (type); Funafuti (Hedley).

R. HEDLEYI, Tate, 1899.

South Australia (type).

R. HORRIDA, Garrett.

R. Curtisi, E. A. Smith, *R. australis*, Sow., are synonyms after Tryon.

Queensland.

The quotation of this species for S. Aust. is an error; the single example so named is a worn *Rissoia cheilostoma*.

R. NODOCINCTA, A. Adams, 1851.

North Australia.

R. SEMISCULPTA, Tate, 1899.

Tasmania. !

3. SECTION ZEBINELLA.

R. ELEGANTULA, Angas.

West Australia to New South Wales; also S. Africa.

R. RETICULATA, Sowerby, 1824.

North Australia (Chall. Exped.).

4. SECTION PYRAMIDELLOIDES.

R. MIRANDA, A. Adams.

N. Aust. (Challenger Exped.).

II. SUBGENUS DIASTICTUS.

R. PUNCTATISSIMA, Tate, 1899.

South Australia (type).

III. SUBGENUS RISSOLINA.

R. CRASSA, Angas, 1871.

W. Aust. !; S. Aust. !; Vict. ; N.S.W. (type), ex. Aust. Mus. !; Queensland (ex. Brisbane Mus. !).

R. FLEXUOSA, Gould, see post, p. 243.

W. Aust. ; S. Aust. !; Victoria !; Tasm. !; N.S.W. (type), Sydney (ex. Aust. Mus. !).

R. MERCURIALIS, Watson, 1886.

N. Aust. (type).

R. PLICATA, A. Adams, 1851.

R. scalarina, A. Adams; *R. turricula*, Pease (*teste* Hedley). N. Aust. (Chevert Exp.).

IV. SUBGENUS SCHWARTZIELLA.

R. CINCTA, Angas, 1867.

N.S.W. (type); Tasmania.

SPECIES UNCLASSIFIED AND UNFIGURED.

R. cardinalis, *efficata*, *inconspicua*, *inermis*, *pulchella*, and *teres*—all of Brazier, and all the types from North Australia.

R. Kershawi, *minutissima*, and *suprasculpta* of Tenison-Woods; *R. approxima*, Petterd, all of Tasmania.

R. cretacea, Tenison-Woods; type from New South Wales.

SYNONYMS AND EXCLUDED OR DOUBTFUL SPECIES.

Angasi, *Pease* = *flexuosa*.

Australis, *Sowerby* = *horrida* (teste Tryon).

Brazieri, *Ten.-Woods*. A *Rissoia* is implied by the subgeneric title of *Setia*, but the shell belongs to *Assimineae*.

Concatenata, *Ten.-Woods*. From the description this is a doubtful *Rissoina*. If it belongs there, it is juvenile. Mr.

May, who has studied the type, says it is unidentifiable.

Curtisi, *E. A. Smith* = *horrida* (teste Tryon).

Cylindracea, *Ten.-Woods*, is a *Rissoia*.

D'Orbigny, *Schwartz* = *spirata*.

Flindersi, *Ten.-Woods* = *Diala pagodula*.

Lirata, *Angas* = *nivea*.

Montrouzieri = *spirata*.

Quasillus, *Melville* = *exasperata* (teste Hedley).

Scalarina, *A. Adams* = *R. plicata*.

Smithii, *Angas* = *R. fasciata*.

St. Clare, *Ten.-Woods* = *Diala monile*, var.

Tasmanica, *Ten.-Woods*, is a *Rissoia*.

Toxopleura, *Tate* = *R. nivea*.

Turricula, *Angas* = *R. flexuosa* (teste Tryon).

Turricula, *Pease* = *R. plicata*.

Unilirata, *Ten.-Woods*, is a *Rissoia*.

DESCRIPTIVE NOTES ON SOUTH AUSTRALIAN RISSOINÆ.

GENUS RISSOINA.

SECTION RISSOINA (*sensu stricto*).*Rissoina nivea*, *A. Adams*.

References.—*R. nivea*, *A. Adams*, P.Z.S., 1851, p. 265; *Schwartz*, *Rissoiden I.*, 1860, p. 47, f. 10; *Reeve*, *Icon. Conch.*, f. 91; *Tryon*, *Man. Conch.*, IX., 1887, p. 379, t. 55, f. 24 (copied from *Reeve*).

Synonyms.—*R. lirata*, *Angas*, P.Z.S., 1880, p. 417, t. 40, f. 11; *Tryon*, *Man. Conch.*, IX., p. 373, t. 54, f. 10 (copied from *Angas*).

R. toxopleura, Tate (nom. mut.), Trans. Roy. Soc. S. Aust. XVII., 1893, p. 200.

R. nivea is referred by Tryon to *Schwartziella*, whilst he places *R. lirata* under *Rissoina* (*sensu stricto*). I am afraid that either I do not appreciate the differences between these sections or that Tryon had no personal knowledge of the species, as I have no hesitation in attaching *R. lirata* to *R. nivea*. If there be any question as to its sectional position, it should be as to its reference to *Zebinella*.

The type of *R. nivea* was collected at Port Lincoln, and the species was listed for South Australia by Angas, P.Z.S., 1878, p. 867; whilst the specimens which served him for his description and figure of *R. lirata*, published two years later, were supplied by me. The descriptions of the two are essentially identical, whilst my cotypes of *R. lirata* agree thoroughly with Schwartz's figure of *R. nivea*.

In ignorance of the invalidity of Angas' name I changed it, as above indicated, because it had previously been employed by Gould in 1861.

Distribution.—This species is common in shell-sand in St. Vincent Gulf, the type is from Port Lincoln, and I have taken it at Denial Bay on the west coast of South Australia. It has been sent to me from King George Sound, West Australia. Tenison-Woods records it for Tasmania.

Rissoina spirata, Sowerby.

References.—*R. spirata*, Sowerby, Genera Shells, 1820-24, t. 208, fig. 2; Schwartz, Rissoiden, 1860, p. 101, f. 69; Reeve, Icon. Conch., f. 17 (*bad*); Tryon, Man. Conch. IX., p. 388, t. 58, f. 29 (copied from Reeve).

Many synonyms are included by Tryon under *R. spirata*; of these *R. d'Orbigny*, which, judging from Schwartz's figure of it, is inseparable. *R. d'Orbigny* has been listed as a South Australian shell by Angas, but in 1893 I referred it to *R. spirata*.

The specimens which I attribute to *R. spirata* have the exact outline and size corresponding with Schwartz's figure, but instead of the anterior whorls having the axial ornamentation replaced by spiral striae they present a gradual decadence in the strength of the costation, and though it is faint on the body-whorl, yet it is more conspicuous, even there, than the microscopic spiral striation.

Tryon refers *R. spirata* to *Morchiella*, but it offers, at any rate in our Southern Australian examples, no essential differences from *Rissoina* (*s.s.*); it is thus a connecting link between the two sections. A smooth and small kind also occurs. The *Morchiella*-state may possibly be exhibited in each of the sub-

ordinate groups, but at any rate it appears in at least two of them; thus, *R. spirata* is a *Morchiella* among *Rissoina* (s.s.), and *R. Antoni* among *Phosinella*, and though I have not observed the total extinction of the ornament of the younger part of the spire on the body-whorl in other groups, yet the tendency thereto is shown by some species in each. On these grounds, *Morchiella* should be rejected.

Distribution.—In South Australia I have taken it at many localities throughout its coast-line, from the Great Australian Bight to Cape Northumberland. I have examined examples from Victoria and Tasmania. It is reported from New South Wales and North Australia. Occurs in New Caledonia (as *R. Montrouzieri*), &c., to Indian Ocean and Gulf of Suez.

SECTION PHOSINELLA.

Rissoina Hedleyi, *spec. nov.* Pl. vii., fig. 8.

Solid, translucent-white, conically turritid. Whorls five (protoconch not known), moderately convex, suture impressed; ornamented by subacute axial ribs, much narrower than the concave interspaces, crenated by spiral sulcations and their intervening riblets, both axial and spiral ribs increase in number with the growth of the shell, the spiral riblets are absent on the first whorl, four on the next, six on the penultimate, and ten on the body-whorl. Aperture oblique, roundly elliptic; outer lip arched, thickly varicosed and crenated on the outer margin; inner lip arched, produced anteriorly; the basal funiculus nodulose-dentate, and truncated by the deep basal sinus.

Length, 4.25; width, 2 mills.

Fowler Bay, South Australia (R. Tate, 1879); and Port Western, Victoria (received from Dr. Pulleine).

From the reproduced figure and description given by Tryon, *Man. Conch.*, of *R. Samoensis*, Dunker, in Kuster, *Conch. Cab.*, t. 15c, f. 1, this new species must be closely related to it; the observable differences are that the Samoan shell has three spiral riblets on the antepenultimate, four on the penultimate, and seven on the body-whorl; whereas the South Australian shell has correspondingly four, six, and ten; and, moreover, the axial ribs are much wider apart. The species-name is in compliment to Australia's chief malacologist.

Rissoina semisculpta, *spec. nov.* Pl. vii., fig. 10.

Shell solid, translucent, conic-turritid; whorls five (apex deficient), gradated, separated by a depressed canaliculate suture; posterior whorls ornamented by axial, subacute plications, and three revolving riblets, which cut up the plications into somewhat nodulose crenatures.

The ornamentation begins to fade on the penultimate whorl, and the last whorl is smooth, except for a slight crenulation on the narrow shoulder, and faint spiral and axial lineation on the rest of the whorl.

Aperture oblique, semilunate, narrowed above, and effuse below; columella-lip very oblique, sinuate, distinctly produced, and thickened anteriorly; outer lip arched, anteriorly dilated, thickened, but not varicose.

Length, 6; width, 2.5 mm.

Locality.—Tasmania (received from Mr. W. L. May).

The only living species to which *R. semisculpta* approximates sufficiently to necessitate detailed comparison is *R. Antoni*, Schwartz, from which it differs by gradated whorls, axial costation more defined, and the nodulose cancellation hardly, or not at all, developed.

SECTION ZEBINELLA.

Rissoina elegantula, Angas.

References.—*R. elegantula*, Angas, P.Z.S., 1880, p. 417, t. 40, f. 10; Reeve, Conch. Icon.

Tryon, Man. Conch. IX., t. 58, f. 13 (copied), p. 386.

Tryon "thinks that *R. elegantula* will prove a younger state of this species [*striata*, Quoy & Gaimard]; it has eight whorls and is six mills, long." Angas received his types from me, they were adults; the species exhibits, however, variation in size, a macromorph before me measures 8 mills, and has eight whorls, and the axial lines are not obsolete on the body whorl; so that there is good reason, in the absence of actual comparison, for the opinion that *R. elegantula* is different from *R. striata*.

Distribution.—In South Australia it is found in St. Vincent and Spencer Gulfs, and extends westward to King George Sound. I have named it from Victorian and Tasmanian examples, and Mr. Henn has recorded it from New South Wales.

SUBGENUS DIASTICTUS.

Rissoina punctatissima, spec. nov. Pl. vii., fig. 9.

Shell conically pyramidal, somewhat thin and translucent (somewhat clouded at the suture and white at the aperture). Whorls five (apex unknown), slightly convex, spirally sulcated; sulci closely punctated in a single series. The sulci increase in numbers with the growth of the shell; on the posterior whorls the two, three, or four antesutural ones are wider and deeper than the rest; about twelve sulcations on the penultimate whorl; on the body whorl they are numerous, equally slender, and occupy the whole surface. Aperture auriform and somewhat explanulate;

the outer lip is very much thickened and prominently margined ; the aperture is but slightly angulated at the junction of the basal lip and the columella.

Dimensions.—Length, 6 ; width, 3 mills ; micromorphs range to half-size.

Localities.—Common in shell-sand at Streaky and Fowler Bays, collected there by me in 1879 ; I have also taken it at Aldinga Bay in St. Vincent Gulf.

This species is not a typical *Zebinella*, its ornamentation being limited to punctuate sulci, whilst its expanded and variced aperture still further removes it. Nevertheless, there are some points of agreement therewith, and the distinctive characters are not so trenchant as to justify generic separation. In the absence of material for comparison, I venture to place it in proximity to *Rissoina expansa*, Deshayes, of the Parisian Eocene, which M. Cossmann, 1888, has made the type of a new genus, *Diastictus*, the original diagnosis of which is as follows :—"Conica, subulata, anfractis regulariter punctulatis ; apertura auriformi et expansilabris ; labro marginato et reflexo, columella arcuata, callosa." Omitting *subulata* (which is rather specific than of generic value) every word of the definition seems to be applicable to the recent species ; if my interpretation be correct, then *R. punctatissima* is another instance of an Eocene group surviving in Australian waters.

SUBGENUS RISSOLINA.

Rissoina crassa, Angas.

References.—*R. crassa*, Angas, P.Z.S., 1871, p. 17, t. 1, f. 16. Reeve, Conch. Icon., f. 70 ; Tryon, Man. Conch. IX., t. 55, f. 20 (copied).

Tryon refers this species to *R. Rissoi*, Audouin, inhabiting the Red Sea, but his figures of the two incline one to a different view.

Distribution.—The type is from Port Jackson, and South Australian examples from my collection were named by the author of the species. I have specimens of it from King George Sound ; it has been recorded from Victoria, and I have received it from Queensland under the name of *R. ambigua*. The South Australian occurrences are Holdfast Bay, Aldinga Bay and Salt Creek in St. Vincent Gulf, Wauraultie in Spencer Gulf, Streaky Bay, and at the Head of the Great Australian Bight.

Rissoina flexuosa, Gould.

References.—*R. flexuosa*, Gould, Otia, p. 144, Reeve, Conch. Icon., f. 97 ; Tryon, Man. Conch. IX., p. 380, t. 68, f. 1-2.

Synonyms.—*R. turricula*, Angas, P.Z.S., 1867, p. 114, t. 13, f.

20 ; Reeve, Conch. Icon., f. 69. *R. Angasi*, Pease, Amer. Journ. Conch. VII., 1872, p. 20.

This species has the apertural characters proper to *Rissolina*, and is, therefore, removed thereto from *Schwartziella*.

The types of *R. flexuosa* and *R. turricula* are both from New South Wales. Tryon states the origin of the synonyms, p. 381, *op. cit.*, as follows:—"Gould's description was made from an immature specimen; Angas subsequently described it as *R. turricula*, which being pre-occupied by Pease, the latter changed it to *R. Angasi*." Reeve treats them as distinct species.

The identification of South Australian examples with *R. turricula* was in the first instance due to Angas, from material forwarded by me.

Distribution.—New South Wales (types). In South Australia it has the same range as *R. crassa*. I have identified examples from West Australia, Victoria, and Tasmania (previously recorded by Tenison-Woods).
